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IN THE CLAIMS

1 (Previously Presented). A system, comprising:

a signal generator;

impedance mismatch hardware coupled to the signal generator, wherein the impedance mismatch hardware includes at least one impedance;

a fuzzy inference system controller coupled to the impedance mismatch hardware, said controller to adjust the impedance mismatch hardware, wherein the controller to determine whether a telephone loop is capable of carrying Digital Subscriber Line service;

wherein the fuzzy inference system controller adjusts the impedance of one or more components in the impedance mismatch hardware to modify one or more characteristics of the received signal; and

wherein after the received signal is modified to a maximal value, a time between the transmit signal and received signal is used to determine a length of the telephone loop.

2 (Original). The system of claim 1, wherein the impedance is resistive, capacitive or inductive impedance.

3 (Original). The system of claim 2, further comprising a termination impedance coupled to the impedance mismatch hardware.

4 (Original). The system of claim 1, wherein the impedance mismatch hardware modifies one or more characteristics of a received signal, wherein the received signal is an echo of a signal transmit from the signal generator.

5 (Original). The system of claim 4, wherein the received signal determines the capability of a subscriber's loop to carry Digital Subscriber Line service.

Claims 6-8 (Canceled).

9 (Original). The system of claim 8, wherein the length of the telephone loop and other loop characteristics are used to determine if the telephone loop is capable of carrying DSL service.

10 (Previously Presented). A method, comprising:

transmitting a first signal;

receiving a second signal, wherein the second signal has an amplitude; and

adjusting one or more impedances, using a fuzzy inference system, to amplify the second signal amplitude using impedance mismatch hardware;

adjusting the second signal to a maximal value; and

using a time between the first signal and second signal to determine a length of a telephone loop.

11 (Original). The method of claim 10, further comprising:

calculating a time delay from the amplified second signal amplitude; and

wherein the impedance mismatch hardware couples to a fuzzy inference system controller.

12 (Original). The method of claim 11, further comprising determining loop length, loop taps, and insertion loss from the time delay.

13 (Original). The method of claim 12, further comprising determining whether a telephone loop is capable of carrying Digital Subscriber Line service from the loop length, loop taps, and insertion loss.

14 (Previously Presented). An article comprising a storage medium storing instructions that when executed by a machine result in:

transmitting a first signal;

receiving a second signal containing an amplitude, wherein the second signal is an echo of the first signal;

adjusting the second signal to a maximal value; and

using a time between the first signal and second signal to determine a length of a telephone loop.

15 (Original). The article of claim 14, wherein the instructions when executed also result in:

determining whether the second signal amplitude is an amplified value;
calculating a time delay from the amplified value; and
adjusting the impedances by fuzzy inferencing.

16 (Original). The article of claim 15, wherein the instructions when executed also result in:

determining loop characteristics from the time delay.

17 (Original). The article of claim 15, wherein the instructions when executed also result in:

determining loop length, loop taps, and insertion loss from the time delay.

18 (Original). The article of claim 17, wherein the instructions when executed also result in:

determining whether a telephone loop is capable of carrying Digital Subscriber Line service from the loop length, loop taps, and insertion loss.